

Zentek Announces Successful Aptamer Testing for Longevity of Protection and Minimum Effective Dose

written by Raj Shah | October 10, 2023

October 10, 2023 ([Source](#)) – **Zentek Ltd.** (“**Zentek**” or the “**Company**”) (Nasdaq:ZTEK)(TSX-V:ZEN), an intellectual property technology development and commercialization company is pleased to announce further successful pre-clinical testing of the aptamer-based platform technology by the Dr. Matthew Miller Lab.

After initial promising results released on July 27th, 2023, which featured an aptamer therapeutic/prophylactic using the novel platform technology developed by the lab of Dr. Yingfu Li and tested by the team of Dr. Matthew Miller, further preclinical testing has been completed supporting this aptamer as a lead therapeutic target.

Longevity of Protection

An in vivo preclinical longevity of protection study was conducted to assess the safety and efficacy of the aptamer-based treatment over a period of 24 hours. This duration was chosen to mimic a suitable prophylactic use case that balances the convenience of a daily dose while maintaining complete protection. The study successfully demonstrated that the novel aptamer provided 24 hours of neutralizing protection against SARS-CoV-2 and improves the potential of the aptamer as a prophylactic in a setting that is both commercially and clinically relevant.

The trial used three test groups of 10 mice, which were administered three separate treatments 24 hours prior to administering the virus:

- Group 1 – control that was administered saline
- Group 2 – received the novel aptamer developed by the Li lab
- Group 3 – received the S309 antibody treatment; the most effective antibody against SARS-CoV-2 variants that received emergency use approval

After 24 hours, all mice received a lethal challenge (10^5 PFU) of the original Wuhan strain of SARS-CoV-2. Viral titers were measured and histopathology was performed at the end of the 7-day study. The mice that received the aptamers showed no clinical signs of infection, similar to those that received the S309 antibody.

Minimum Effective Dose

A subsequent study was conducted to determine the minimal effective dose of the aptamer required to protect against a lethal challenge (10^5 PFU) of SARS-CoV-2 – an important step in safety profile and resource efficiency optimization. Four separate groups of 10 mice were tested in the experiment:

- Group 1 – control that received saline
- Group 2 – received the original aptamer dosage (258 μ M)
- Group 3 – received a 10-fold lower dose (25.8 μ M)
- Group 4 – received a 50-fold lower dose (5.16 μ M)

After two hours, mice were challenged with a lethal dose of SARS-CoV-2. The Group 2 mice that received 258 μ M of aptamer were consistent with the previous tests reported on July 27th,

where the aptamers provided sterilizing protection. Group 3, which received a ten-fold lower dose (25.8 μ M), showed no clinical markers of infection demonstrating that this lower aptamer dose still provided complete protection against SARS-CoV-2. Group 4 that received the lowest dose showed signs of infection similar to the control group suggesting that an optimum dosage is in the range of 25.8 μ M through this delivery system.

Based on these promising results, the next step will be to evaluate the aptamer's ability to protect against infection with the Omicron variant.

Dr. Mathew Miller commented: "Understanding how long aptamers can provide protection and the concentration required to be effective are both important requirements to demonstrate the therapeutic and prophylactic potential of aptamers for infectious diseases. Based on the results achieved to date, the aptamer platform developed at the Li Lab has successfully neutralized the SARS-CoV-2 virus at a dose and duration that shows strong therapeutic and prophylactic potential and that suggests the aptamer platform could be an alternative to monoclonal antibodies. This is significant as aptamer-based therapeutics can be developed much more quickly than monoclonal antibodies. A development platform with these attributes could allow for faster and more effective treatment of numerous infectious diseases. Importantly, it could allow governments and healthcare systems to respond much more quickly to new infectious threats to society, which is crucial for global pandemic preparedness efforts."

The Company is not making any express or implied claims that its aptamer technology has the ability to eliminate, cure or contain the Covid-19 (or SARS-2 Coronavirus) at this time.

About Zentek Ltd.

Zentek is an ISO 13485:2016 certified intellectual property technology company focused on the research, development and commercialization of novel products seeking to give the company's commercial partners a competitive advantage by making their products better, safer, and greener.

Zentek's patented technology platform ZenGUARD™, is shown to have 99-per-cent anti-microbial activity and to significantly increase the bacterial and viral filtration efficiency of both surgical masks and HVAC (heating, ventilation, and air conditioning) systems. Zentek's ZenGUARD™ production facility is located in Guelph, Ontario.

Zentek has a global exclusive license to the Aptamer-based platform technology developed by McMaster University which is being jointly developed by Zentek and McMaster for both the diagnostic and therapeutic markets.

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To find out more about Zentek, please visit our website at www.Zentek.com. A copy of this news release and all material documents in respect of the Company may be obtained on Zentek's SEDAR+ profile at <http://www.sedarplus.ca/>.

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SOURCE: Zentek Ltd.